Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_

Alien Genetics

**Directions:** Hector and Annette are an alien couple who are expecting a baby alien and they need your help! They would like to know the probability of their baby inheriting certain traits such as skin color, number of eyes, antennae, and nose shape. As a famous geneticist, it is your job to calculate the genotypic and phenotypic ratios that will result from the parent aliens.

**Step 1:**

Obtain 4 coins from each bag at the front of the room. The coins are labeled with the parental genes on them. Two coins from each bag will represent the mother and two will represent the father. You should have a set of two coins for the mother and father and have 4 sets all together to represent the four genes you are testing. Record your genotypes.

**Skin color:**

Mother’s genotype:\_\_\_\_\_\_\_\_\_\_\_

Father’s genotype: \_\_\_\_\_\_\_\_\_\_\_

**Number of Eyes:**

Mother’s genotype: \_\_\_\_\_\_\_\_\_\_

Father’s genotype: \_\_\_\_\_\_\_\_\_\_\_

**Antennae:**

Mother’s genotype: \_\_\_\_\_\_\_\_\_\_

Father’s genotype: \_\_\_\_\_\_\_\_\_\_\_

**Nose shape:**

Mother’s genotype: \_\_\_\_\_\_\_\_\_

Father’s genotype: \_\_\_\_\_\_\_\_\_\_

**Step 2:**

Make your dihybrid Punnett Squares! You should have two traits on one square and the other two traits on the other square. Be sure to record the genotypic and phenotypic ratios that you obtain.

**Step 3:**

Use the coins to develop a procedure that experimentally tests the results of one of your Punnett Squares. Be sure to include a data table from your experiment. Think like Mendel! Hint: The more offspring that Mendel tested, the closer his ratios were to the expected Punnett Square ratios!

**Procedure:**

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**Data Table:**

Create a table (or multiple) to record your results.

**Outcomes:**

What did you observe? Did your results match up with your predicted values in your Punnett Squares?

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